

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An optically pumped radiation-emitting semiconductor device having a semiconductor body, the semiconductor body comprising: ~~which includes at least one pump radiation source (20) and~~

a surface-emitting quantum well structure; ~~(11);~~

a pump radiation source constructed for generating a pump radiation for optically pumping the quantum well structure, the pump radiation source ~~[(20)]~~ and the quantum well structure ~~[(11)]~~ being in monolithically integrated form; ~~[(,)] and the pump radiation source (20) generating pump radiation (2) for optically pumping the quantum well structure (11);~~

wherein a recess ~~[(10)]~~ for introducing the pump radiation ~~[(2)]~~ into the quantum well structure ~~(11)~~ is formed in the semiconductor body between the pump radiation source ~~[(20)]~~ and the quantum well structure ~~[(11)]~~,

wherein the pump radiation source is a pump laser comprising a resonator, and

wherein the quantum well structure is arranged within the resonator of the pump radiation source.

2. (Currently Amended) The semiconductor device as claimed in claim 1, wherein the recess ~~[(10)]~~ is in a trench form and runs obliquely or perpendicular with respect to a direction of propagation of the pump radiation ~~[(2)]~~.

3. (Currently Amended) The semiconductor device as claimed in claim 1, wherein the recess $[(10)]$ has a first side face $[(26)]$ facing the pump radiation source $[(20)]$ and an opposite, second side face $[(27)]$ facing the quantum well structure $[(11)]$, the pump radiation $[(2)]$ entering the recess $[(10)]$ through the first side face $[(26)]$ and then entering the quantum well structure $[(11)]$ through the second side face $[(27)]$.

4. (Currently Amended) The semiconductor device as claimed in claim 3, wherein the second side face $[(27)]$ is parallel to the first side face $[(26)]$.

5. (Currently Amended) The semiconductor device as claimed in claim 3, wherein at least one of the first and/or and the second side face (26, 27) faces includes an angle equal to [[the]] a Brewster angle with a direction of propagation of the pump radiation (2), ~~in particular with a main direction of emission of the pump radiation source (20).~~

6. (Currently Amended) The semiconductor device as claimed in claim 1, wherein the recess $[(10)]$ is filled with a dielectric or a semiconductor material.

7. (Currently Amended) The semiconductor device as claimed in claim $[[6]]$ 1, wherein the recess $[(10)]$ is filled with a material which has a refractive index substantially equal to [[the]] a refractive index of the pump radiation source $[(2)]$, [[the]] a refractive index of the quantum well structure $[(11)]$ or [[the]] a geometric mean of the latter two refractive indices.

8. (Currently Amended) The semiconductor device as claimed in claim 1, wherein the semiconductor device comprises a vertical emitter with a radiation-generating region formed by the quantum well structure ~~[(11)]~~.

9. (Currently Amended) The semiconductor device as claimed in claim 8, wherein the vertical emitter is a vertically emitting laser, ~~in particular a VCSEL or a disc laser.~~

Claim 10 (Cancelled).

11. (Currently Amended) The semiconductor device as claimed in claim ~~[(10)]~~ 1, wherein the pump laser is an edge-emitting laser.

12. (Currently Amended) The semiconductor device as claimed in claim ~~[(10)]~~ 1, wherein the pump laser is a ring laser.

Claim 13 (Cancelled).

14. (Currently Amended) The semiconductor device as claimed in claim 1, wherein the pump radiation ~~[(2)]~~ is introduced into the quantum well structure ~~(11) in the~~ in a lateral direction.

15. (Currently Amended) The semiconductor device as claimed in claim 1, wherein the pump radiation source ~~[(20)]~~ and the surface-emitting quantum well structure ~~[(11)]~~ are formed from different semiconductor layer sequences.

16. (Currently Amended) The semiconductor device as claimed in claim 1, wherein the pump radiation source [(20)] and the surface-emitting quantum well structure [(11)] are formed epitaxially and in succession.

17. (Currently Amended) The semiconductor device as claimed in claim 1, wherein the recess [(10)] is arranged in a grow-in region between the pump radiation source [(20)] and the surface-emitting quantum well structure [(11)].

18. (Currently Amended) The semiconductor device as claimed in claim 1, wherein ~~in~~ ~~that~~ the pump radiation source [(20)] has at least one waveguide layer ~~(23, 24)~~.

19. (Currently Amended) A method for fabricating an optically pumped semiconductor device having a semiconductor body which includes a surface-emitting quantum well structure [(11)] and at least one pump radiation source [(20)] which generates pump radiation [(2)] for optically pumping the quantum well structure [(11)], the pump radiation source [(2)] and the quantum well structure [(11)] being monolithically integrated, the method comprising the steps of:

- a) providing a substrate [(1)],
- b) epitaxially growing a plurality of semiconductor layers ~~on to~~ onto the substrate [(1)], which layers include the quantum well structure [(11)],
- c) partially removing the semiconductor layers, ~~[[and]]~~

d) epitaxially growing the pump radiation source [(20)] in the region uncovered by the removal in step c) so that the pump radiation source [(20)] adjoins the quantum well structure [(11)], and

e) forming wherein a recess [(10)] for introducing the pump radiation [(2)] into the quantum well structure, the recess being located ~~(11) is formed~~ between the pump radiation source [(20)] and the quantum well structure [(11)],

wherein the pump radiation source is a pump laser comprising a resonator, and

wherein the quantum well structure is arranged within the resonator of the pump radiation source.

20. (Currently Amended) The method as claimed in claim 19, wherein ~~[[in]]~~ step d) further comprises growing semiconductor layers ~~are grown in order~~ to form the pump radiation source [(20)], these semiconductor layers in a grow-in region [(19)], being at least partially ~~growing~~ grown together in ~~[[the]]~~ a lateral direction with the quantum well structure [(11)], and wherein step e) further comprises forming the recess ~~(10) is formed~~ by at least partial removal of the grow-in region [(19)].

21. (Currently Amended) The method as claimed in claim 19, wherein the recess [(10)] is formed by etching, ~~in particular, wet chemical or dry chemical etching.~~

22. (Currently Amended) The method as claimed in claim 19, wherein the recess [(10)] is ~~designed in a trench form, in particular as an etched trench.~~

23. (Currently Amended) The method as claimed in claim 19, wherein the recess ~~[[10]]~~ is filled with a material which transmits the pump radiation.

24. (Currently Amended) The method as claimed in claim 23, wherein the recess ~~[[10]]~~ is filled with a silicone or a semiconductor material.

25. (Currently Amended) A method for fabricating an optically pumped semiconductor device having a semiconductor body which includes a surface-emitting quantum well structure ~~[[11]]~~ and at least one pump radiation source ~~[[20]]~~ which generates pump radiation ~~[[2]]~~ for optically pumping the quantum well structure ~~[[11]]~~, the pump radiation source ~~[[2]]~~ and the quantum well structure ~~[[11]]~~ being monolithically integrated, the method comprising the steps of:

- a) providing a substrate ~~[[1]]~~,
 - b) epitaxially growing a plurality of semiconductor layers ~~on to~~ onto the substrate ~~[[1]]~~, which semiconductor layers include the pump radiation source ~~[[20]]~~,
 - c) forming a window in the plurality of semiconductor layers for the quantum well structure, ~~[[11]]~~, and
 - d) epitaxially growing the quantum well structure ~~[[11]]~~ in the window so that the pump radiation source ~~[[20]]~~ adjoins the quantum well structure ~~[[11]]~~, and
 - e) forming wherein a recess ~~[[10]]~~ for introducing the pump radiation ~~[[2]]~~ into the quantum well structure, the recess being located ~~[[11]] is formed~~ between the pump radiation source ~~[[20]]~~ and the quantum well structure ~~[[11]]~~.
- wherein the pump radiation source is a pump laser comprising a resonator, and

wherein the quantum well structure is arranged within the resonator of the pump radiation source.

26. (Currently Amended) The method as claimed in claim 25, wherein ~~[[in]]~~ step d) further comprises growing semiconductor layers ~~are grown in order~~ to form the quantum well structure ~~[[11]]~~, these semiconductor layers in a grow-in region, being at least partially ~~growing~~ grown together in ~~[[the]]~~ a lateral direction with ~~[[the]]~~ a layer sequence of the pump radiation source ~~[[20]]~~, and wherein step e) further comprises forming the recess ~~(10) is formed~~ by at least partial removal of the grow-in region ~~[[19]]~~.

27. (Currently Amended) The method as claimed in claim 25, wherein the recess ~~[[10]]~~ is formed by etching, ~~in particular, wet chemical or dry chemical etching.~~

28. (Currently Amended) The method as claimed in claim 25, wherein the recess ~~[[10]]~~ is ~~designed~~ in the form of a trench, ~~in particular as an etched trench.~~

29. (Currently Amended) The method as claimed in claim 25, wherein the recess ~~[[10]]~~ is filled with a material which transmits the pump radiation.

30. (Currently Amended) The method as claimed in claim 29, the recess ~~[[10]]~~ is filled with a silicone or a semiconductor material.

31. (New) The semiconductor device as claimed in claim 3, wherein at least one of the first and the second side faces includes an angle equal to a Brewster angle with a main direction of emission of the pump radiation source.

32. (New) The semiconductor device as claimed in claim 1, wherein the pump radiation source comprises an edge-emitting semiconductor laser, and wherein the semiconductor body has outer side faces forming resonator mirrors.